FIG. 1

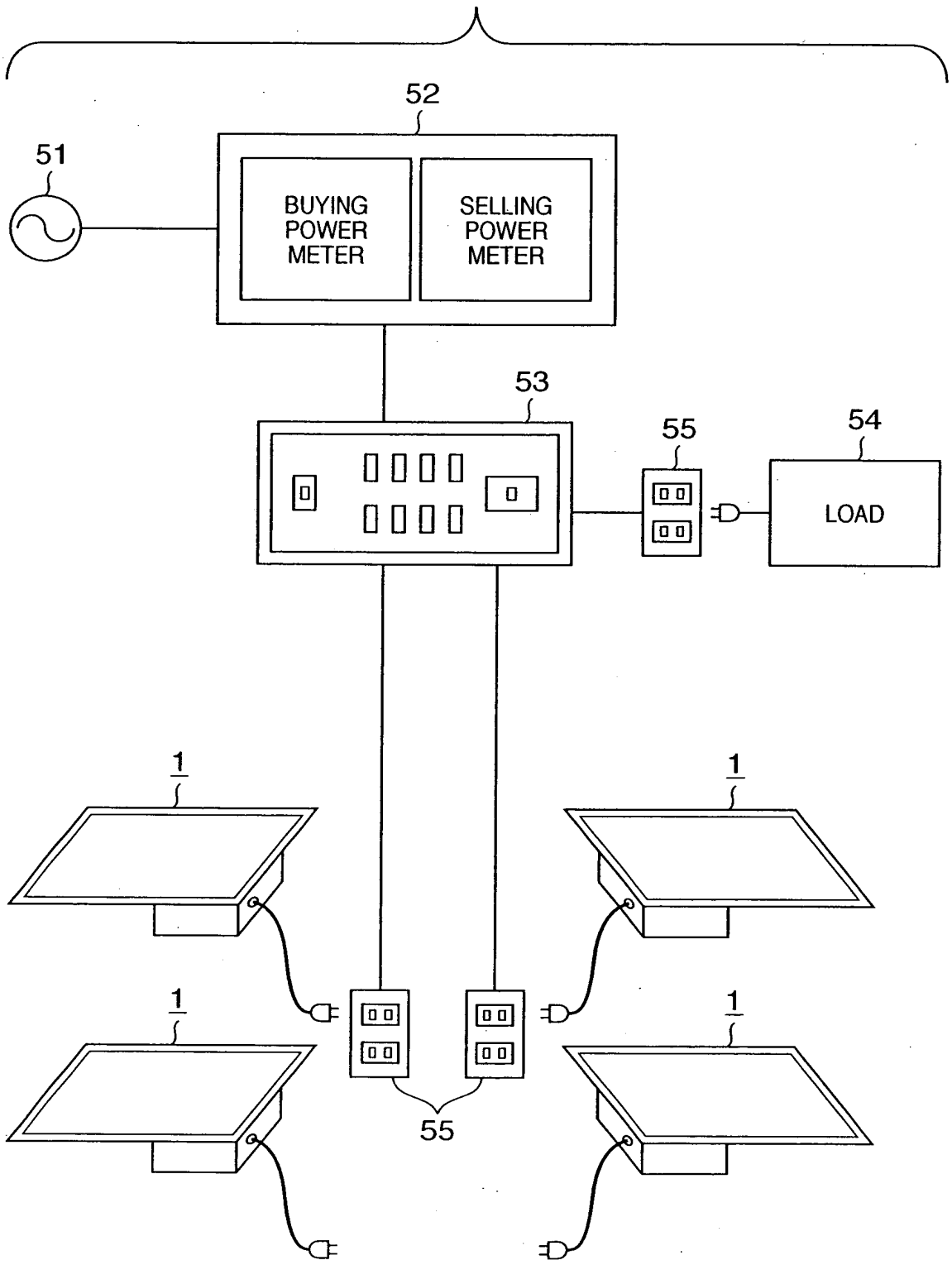
52
51
BUYING POWER METER
SELLING POWER METER
53
55
54
LOAD
1
1
1
1
55

FIG. 2

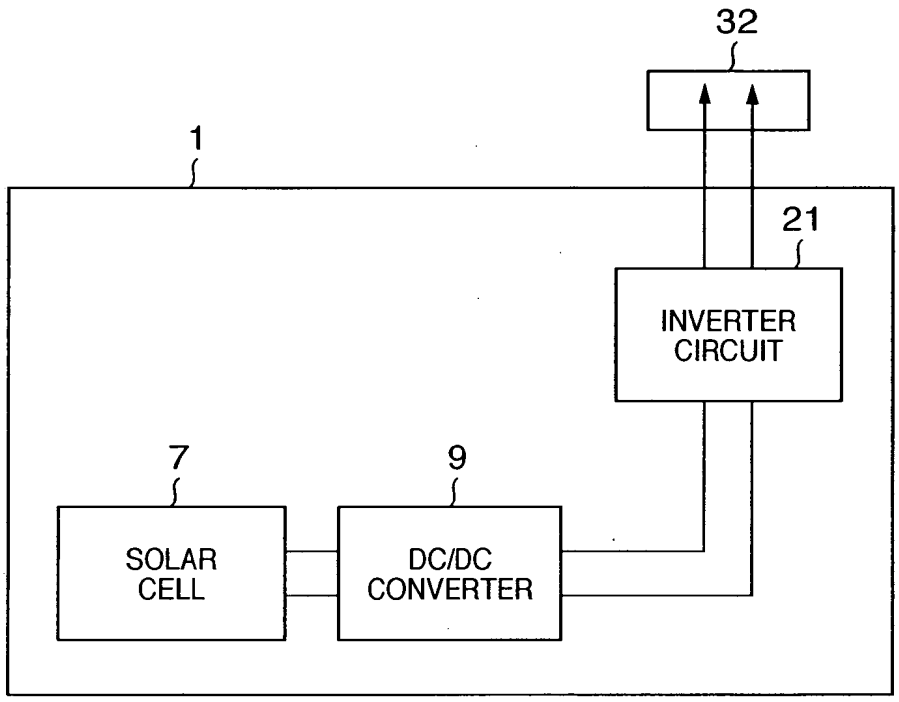

FIG. 3

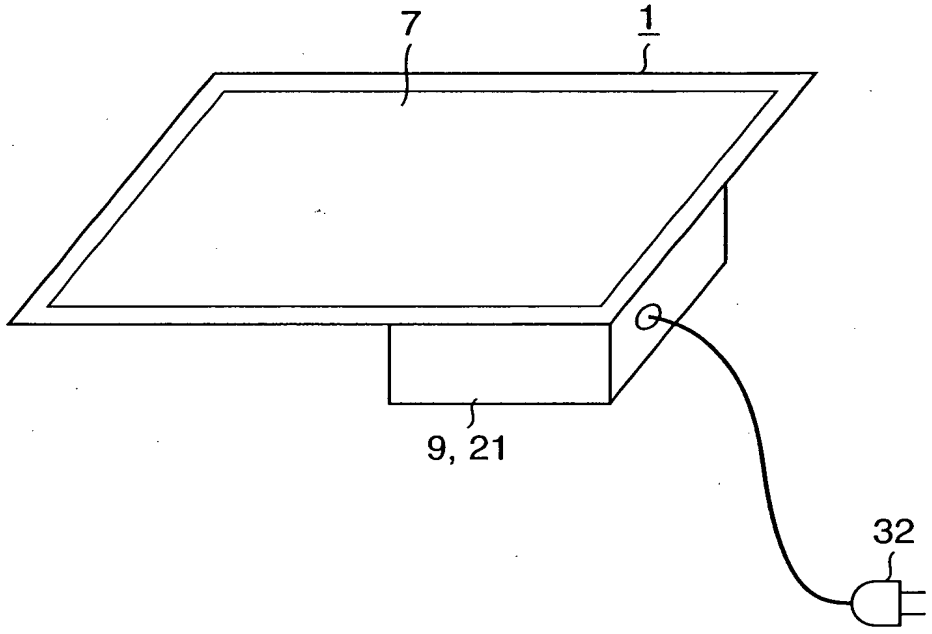

FIG. 4

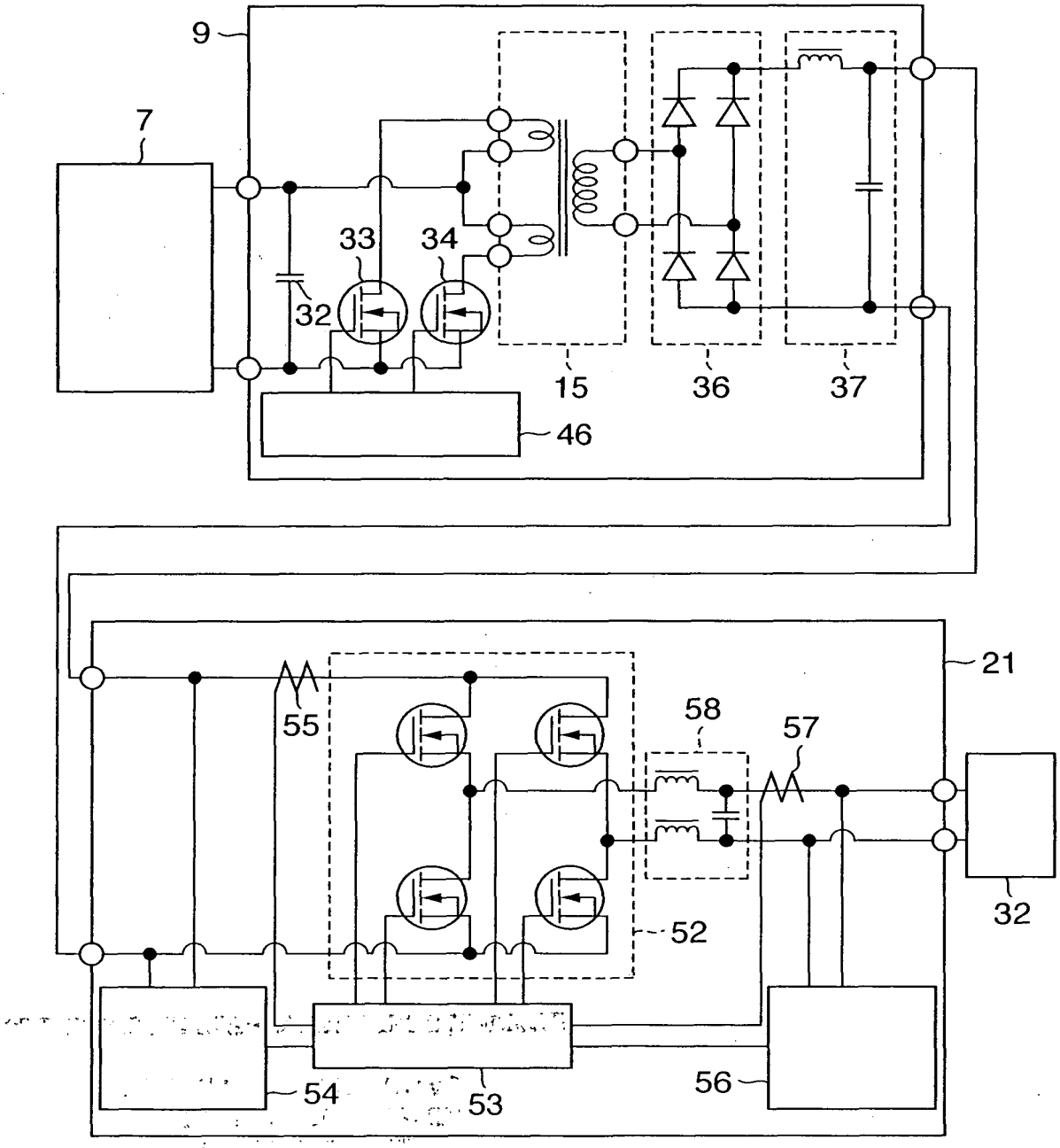

FIG. 5

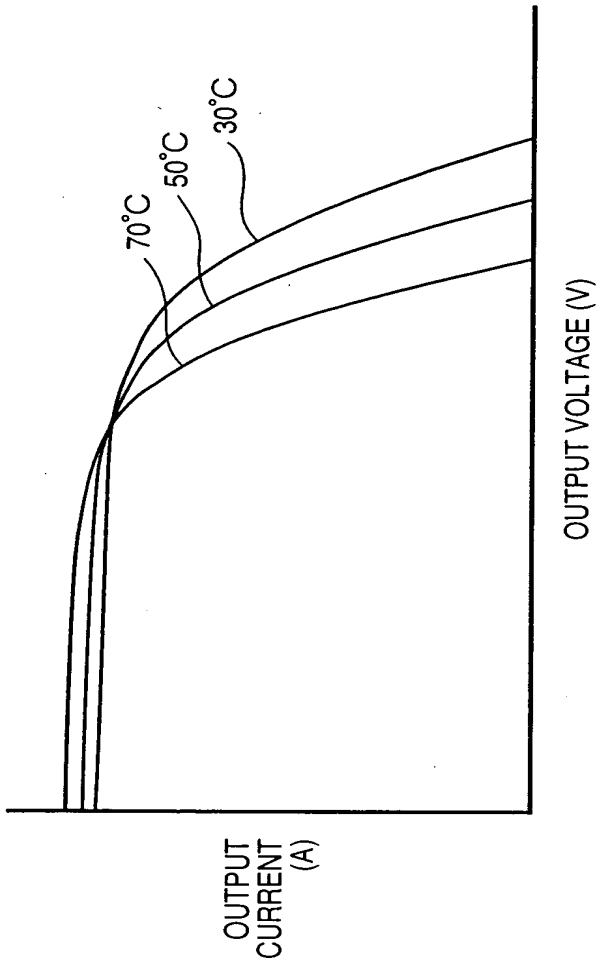

FIG. 6

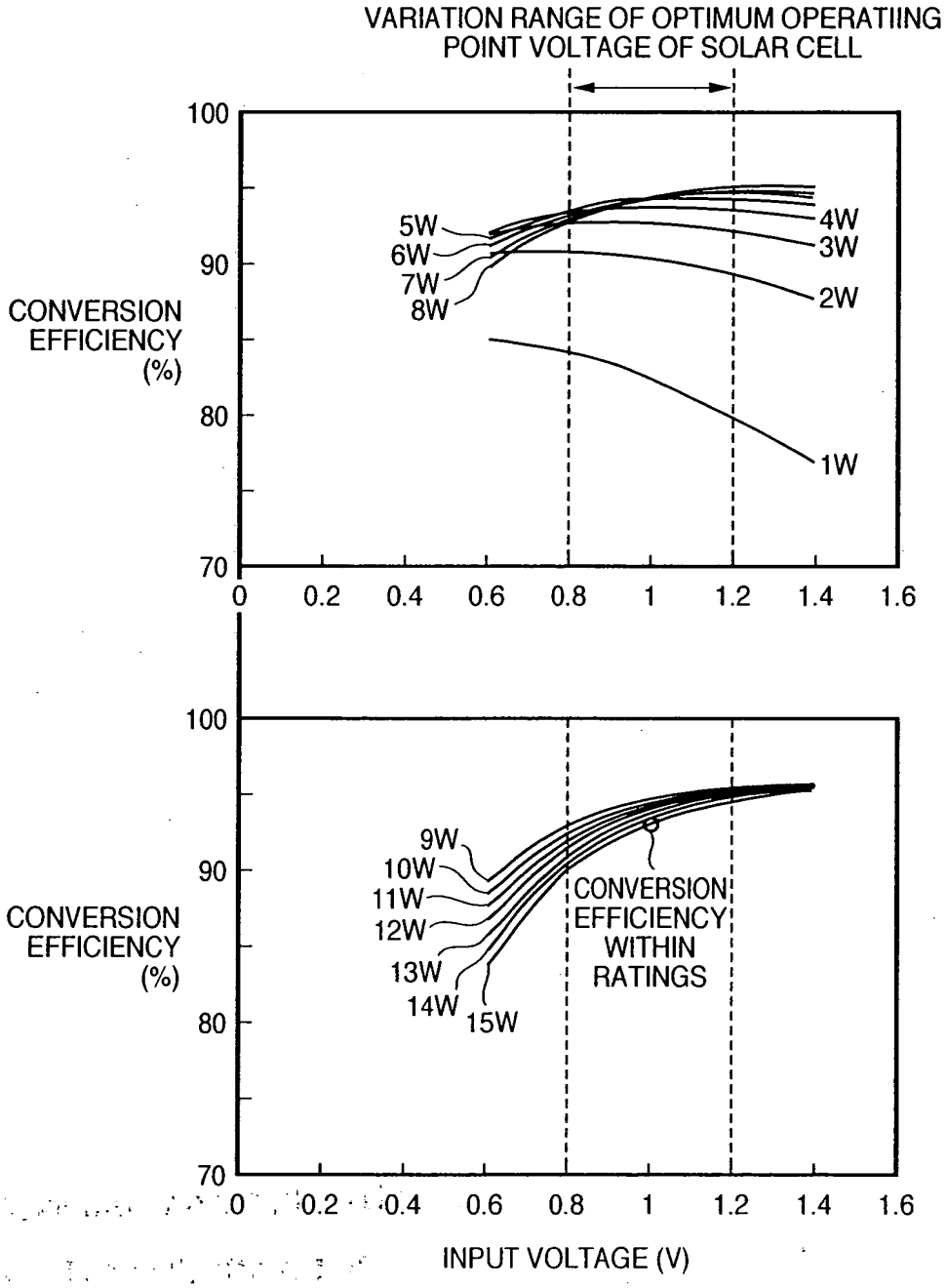
VARIATION RANGE OF OPTIMUM OPERATIING POINT VOLTAGE OF SOLAR CELL
CONVERSION EFFICIENCY (%)
100
90
80
70
0
0.2
0.4
0.6
0.8
1
1.2
1.4
1.6
5W
6W
7W
8W
4W
3W
2W
1W
9W
10W
11W
12W
13W
14W
15W
CONVERSION EFFICIENCY WITHIN RATINGS
INPUT VOLTAGE (V)

FIG. 7

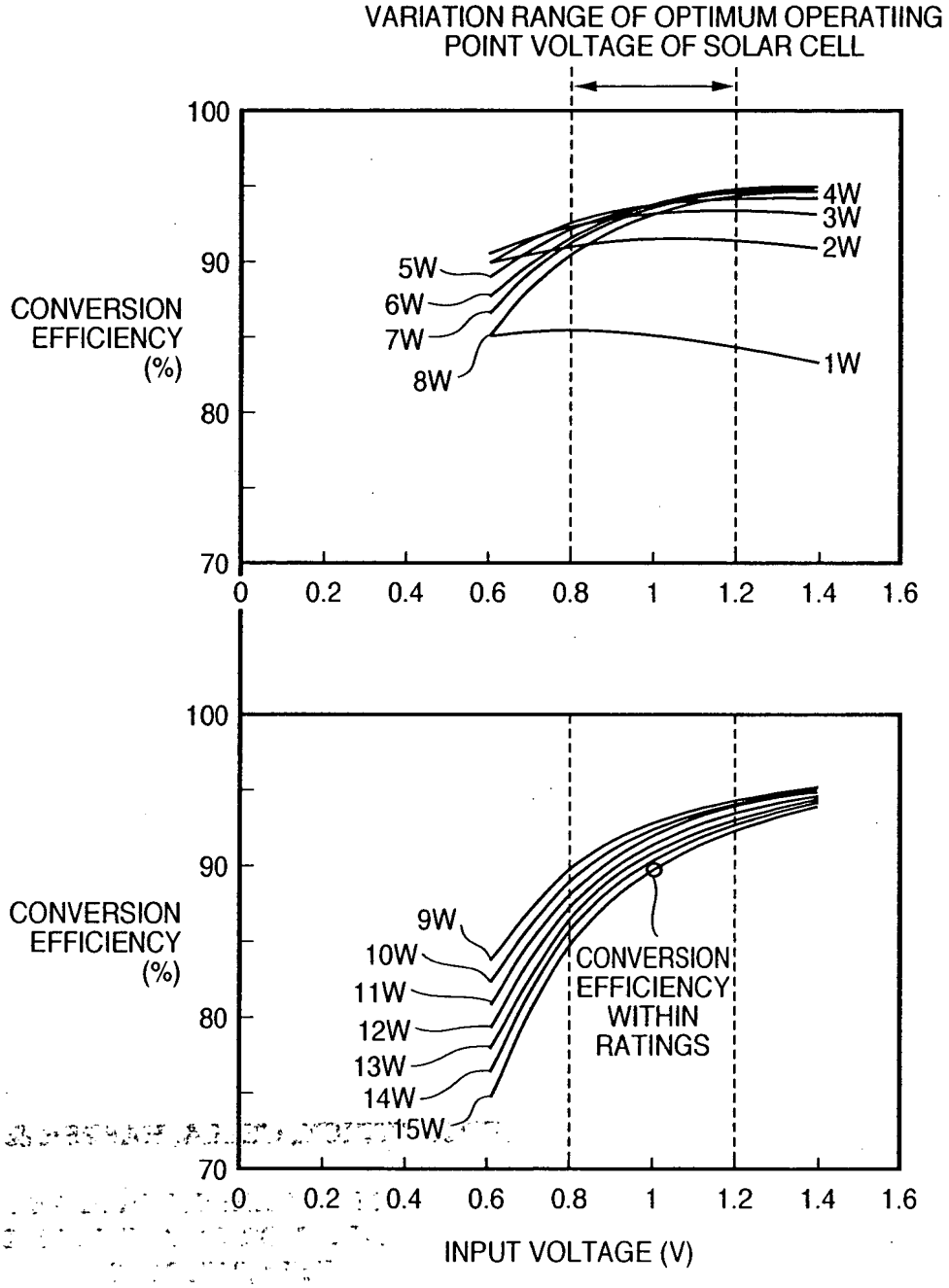
VARIATION RANGE OF OPTIMUM OPERATIING POINT VOLTAGE OF SOLAR CELL
CONVERSION EFFICIENCY (%)
100
90
80
70
0
0.2
0.4
0.6
0.8
1
1.2
1.4
1.6
4W
3W
2W
1W
5W
6W
7W
8W
9W
10W
11W
12W
13W
14W
15W
CONVERSION EFFICIENCY WITHIN RATINGS
INPUT VOLTAGE (V)

FIG. 8

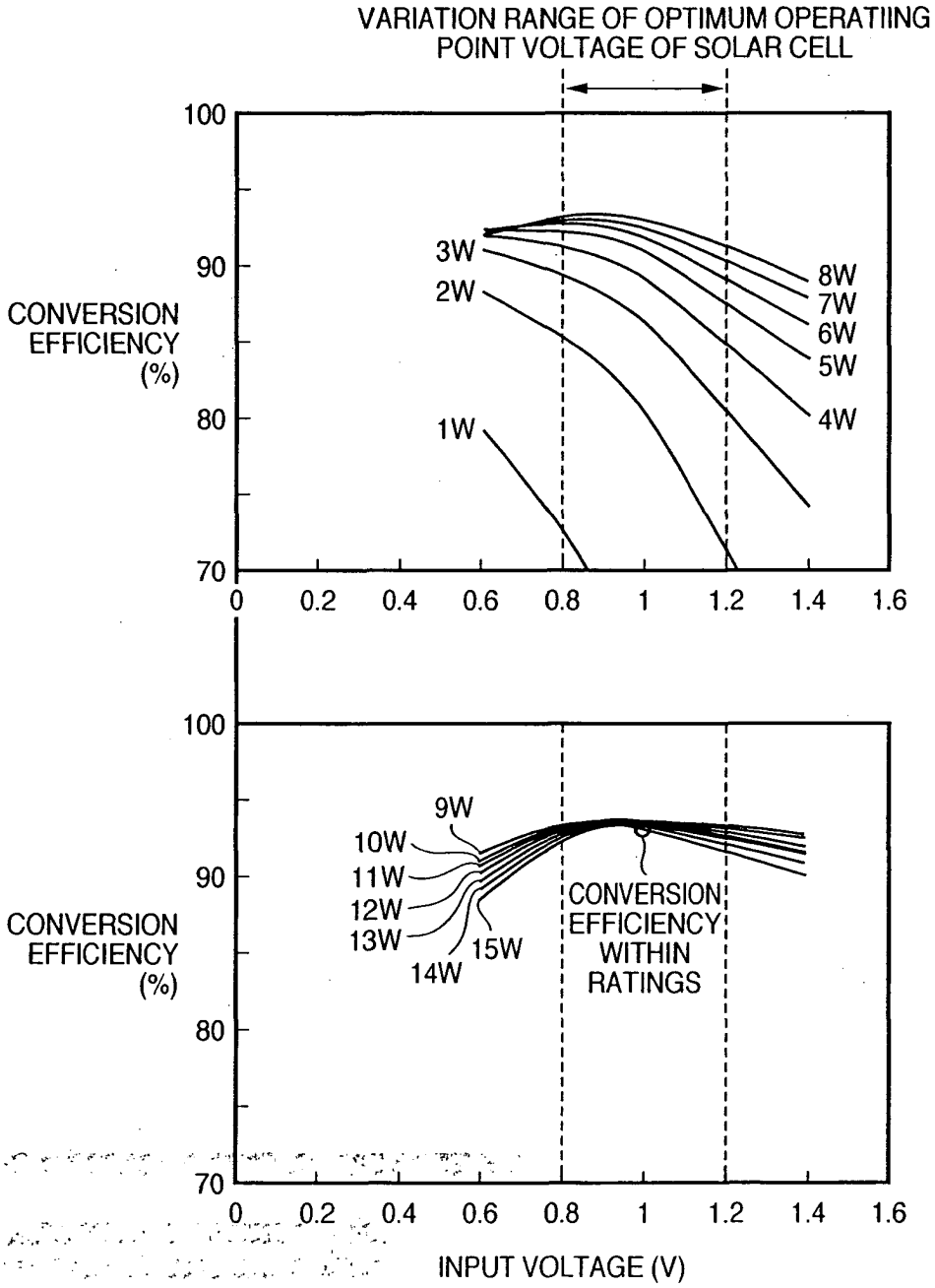
VARIATION RANGE OF OPTIMUM OPERATIING POINT VOLTAGE OF SOLAR CELL
CONVERSION EFFICIENCY (%)
100
90
80
70
0
0.2
0.4
0.6
0.8
1
1.2
1.4
1.6
3W
2W
1W
8W
7W
6W
5W
4W
9W
10W
11W
12W
13W
14W
15W
CONVERSION EFFICIENCY WITHIN RATINGS
INPUT VOLTAGE (V)

FIG. 9

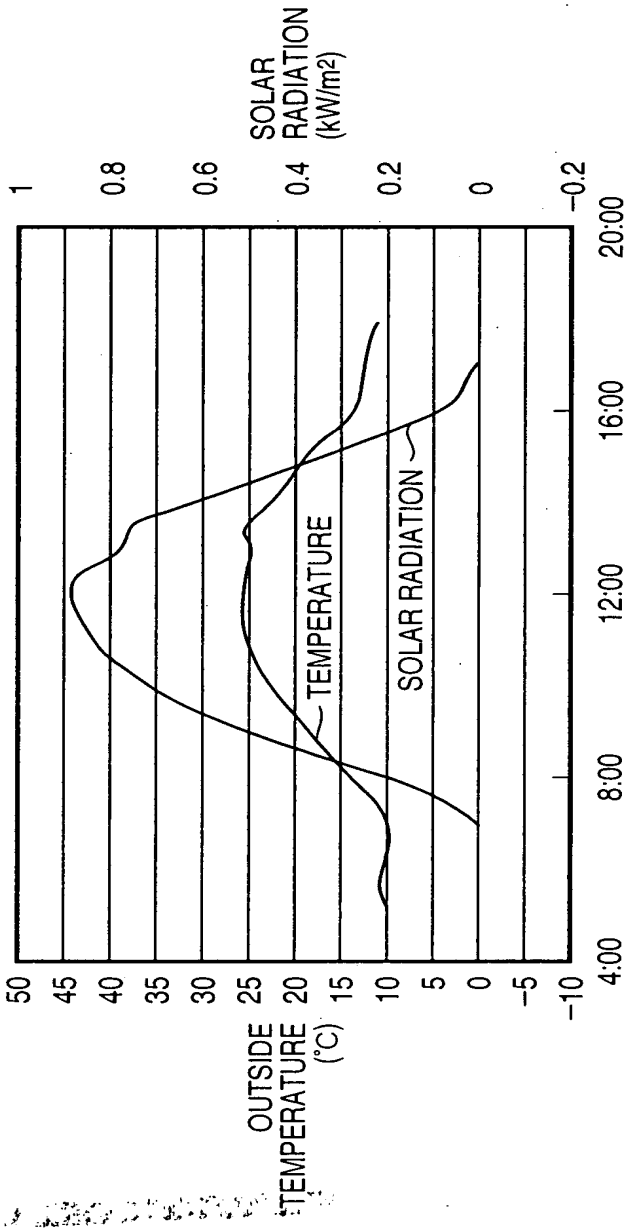
SOLAR RADIATION (kW/m²)
1
0.8
0.6
0.4
0.2
0
−0.2
OUTSIDE TEMPERATURE (°C)
50
45
40
35
30
25
20
15
10
5
0
−5
−10
4:00
8:00
12:00
16:00
20:00
TEMPERATURE
SOLAR RADIATION

FIG. 10

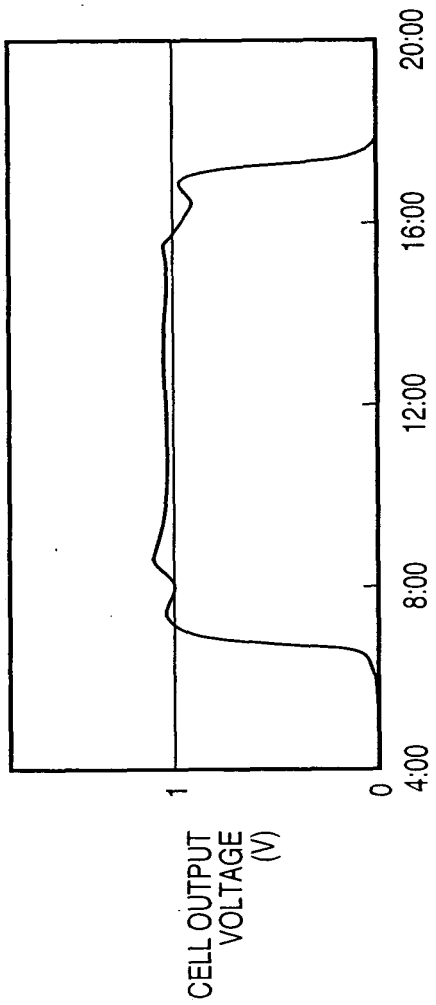

FIG. 11

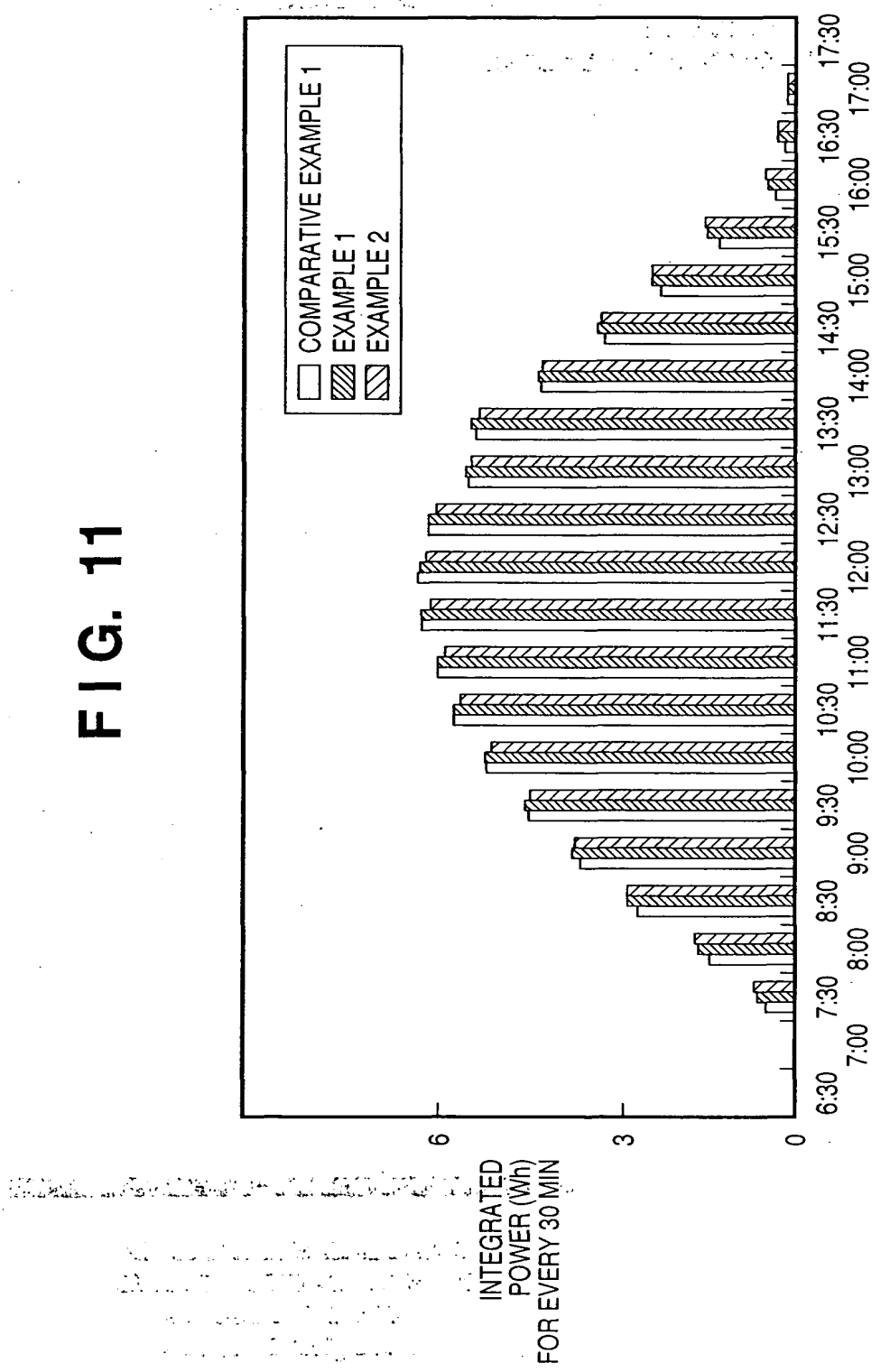
COMPARATIVE EXAMPLE 1
EXAMPLE 1
EXAMPLE 2
INTEGRATED POWER (Wh) FOR EVERY 30 MIN
0
3
6
6:30
7:00
7:30
8:00
8:30
9:00
9:30
10:00
10:30
11:00
11:30
12:00
12:30
13:00
13:30
14:00
14:30
15:00
15:30
16:00
16:30
17:00
17:30

FIG. 12

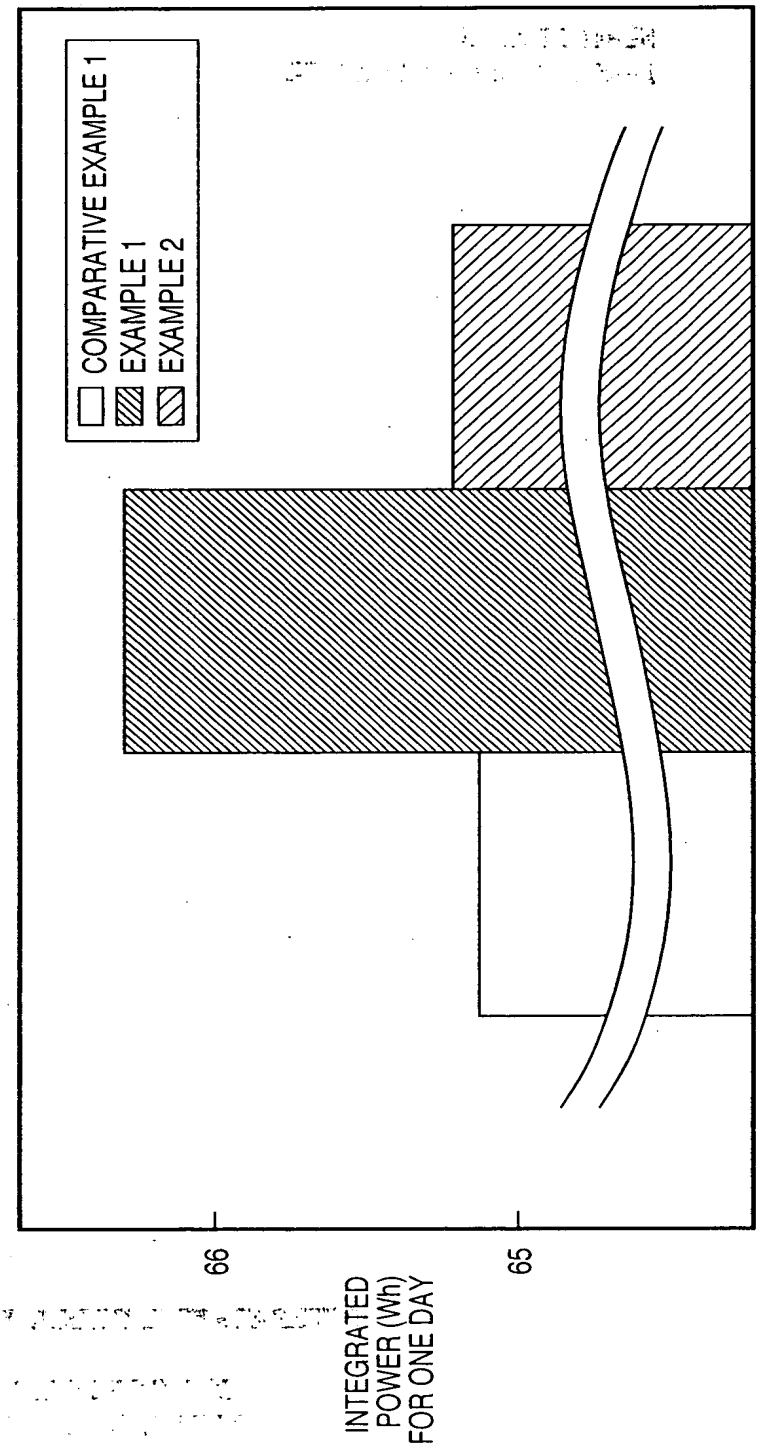
COMPARATIVE EXAMPLE 1
EXAMPLE 1
EXAMPLE 2
66
65
INTEGRATED POWER (Wh) FOR ONE DAY

FIG. 13

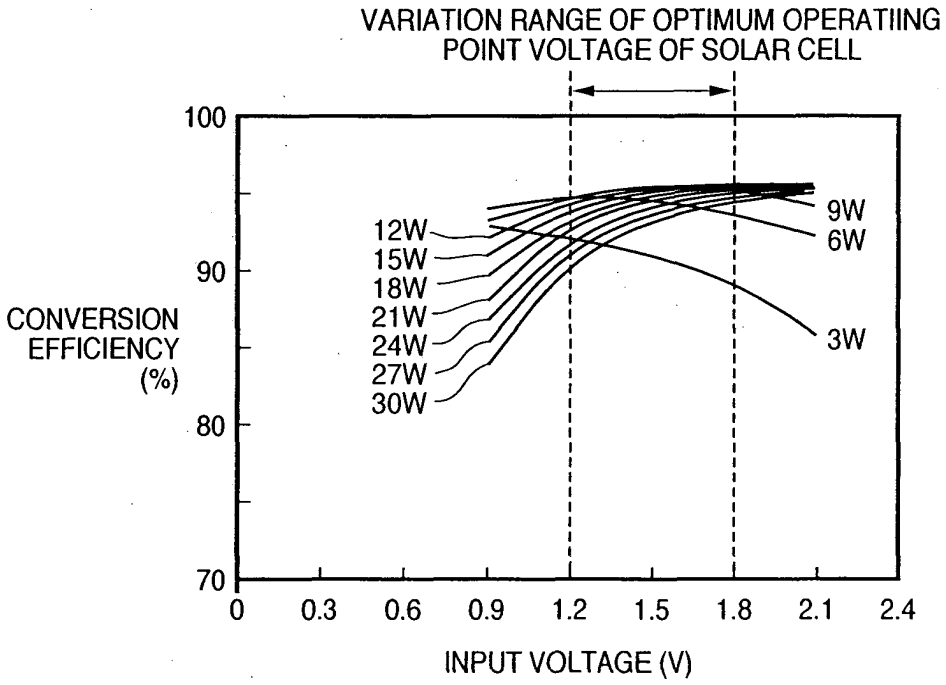
VARIATION RANGE OF OPTIMUM OPERATIING POINT VOLTAGE OF SOLAR CELL
CONVERSION EFFICIENCY (%)
100
90
80
70
0
0.3
0.6
0.9
1.2
1.5
1.8
2.1
2.4
INPUT VOLTAGE (V)
12W
15W
18W
21W
24W
27W
30W
9W
6W
3W

FIG. 14

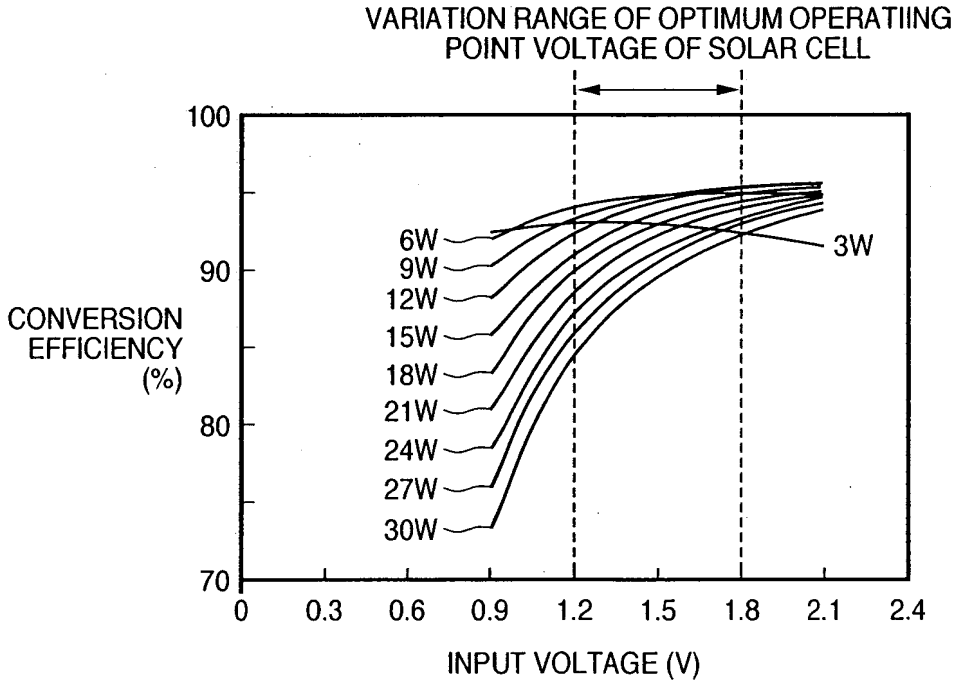
VARIATION RANGE OF OPTIMUM OPERATIING POINT VOLTAGE OF SOLAR CELL
100
90
80
70
CONVERSION EFFICIENCY (%)
6W
9W
12W
15W
18W
21W
24W
27W
30W
3W
0
0.3
0.6
0.9
1.2
1.5
1.8
2.1
2.4
INPUT VOLTAGE (V)

FIG. 15

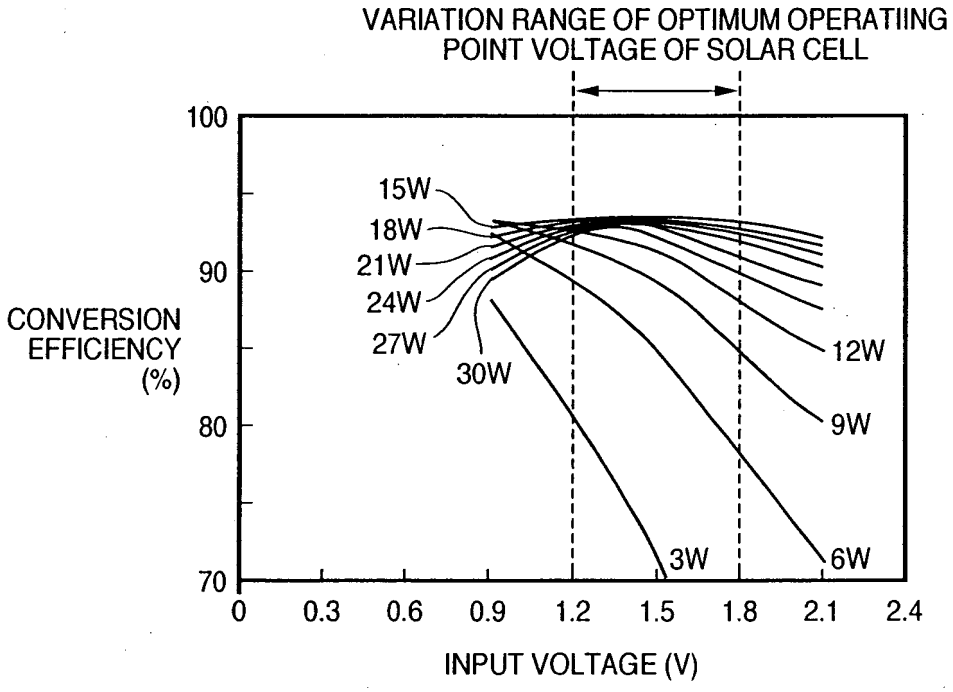
VARIATION RANGE OF OPTIMUM OPERATIING POINT VOLTAGE OF SOLAR CELL
100
90
80
70
CONVERSION EFFICIENCY (%)
15W
18W
21W
24W
27W
30W
12W
9W
6W
3W
0
0.3
0.6
0.9
1.2
1.5
1.8
2.1
2.4
INPUT VOLTAGE (V)

FIG. 16

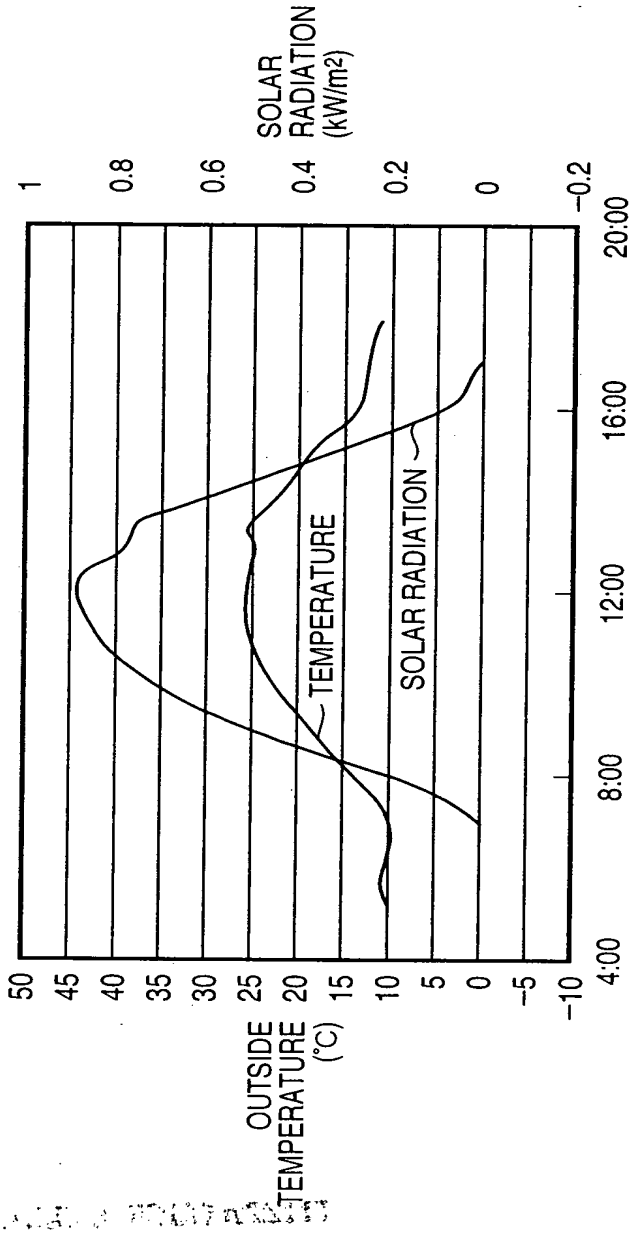
OUTSIDE TEMPERATURE (°C)
50
45
40
35
30
25
20
15
10
5
0
−5
−10
SOLAR RADIATION (kW/m²)
1
0.8
0.6
0.4
0.2
0
−0.2
4:00
8:00
12:00
16:00
20:00
TEMPERATURE
SOLAR RADIATION

FIG. 17

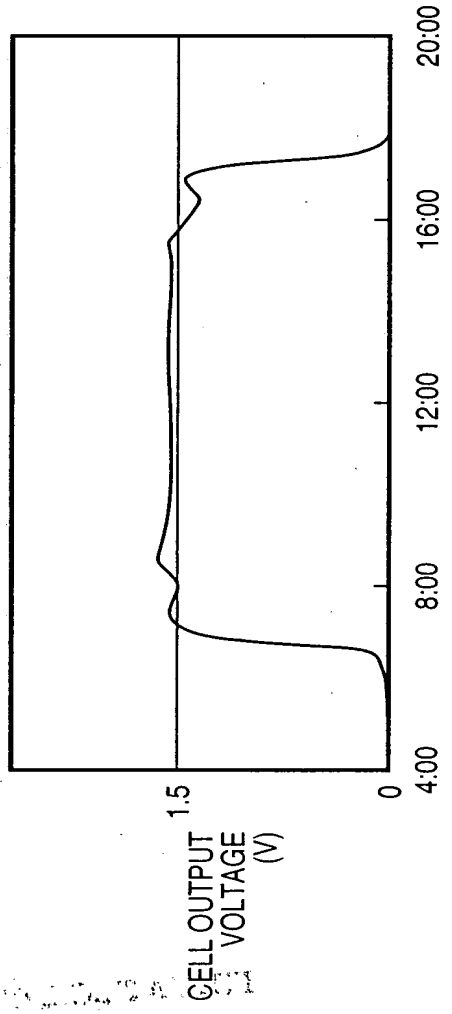

FIG. 18

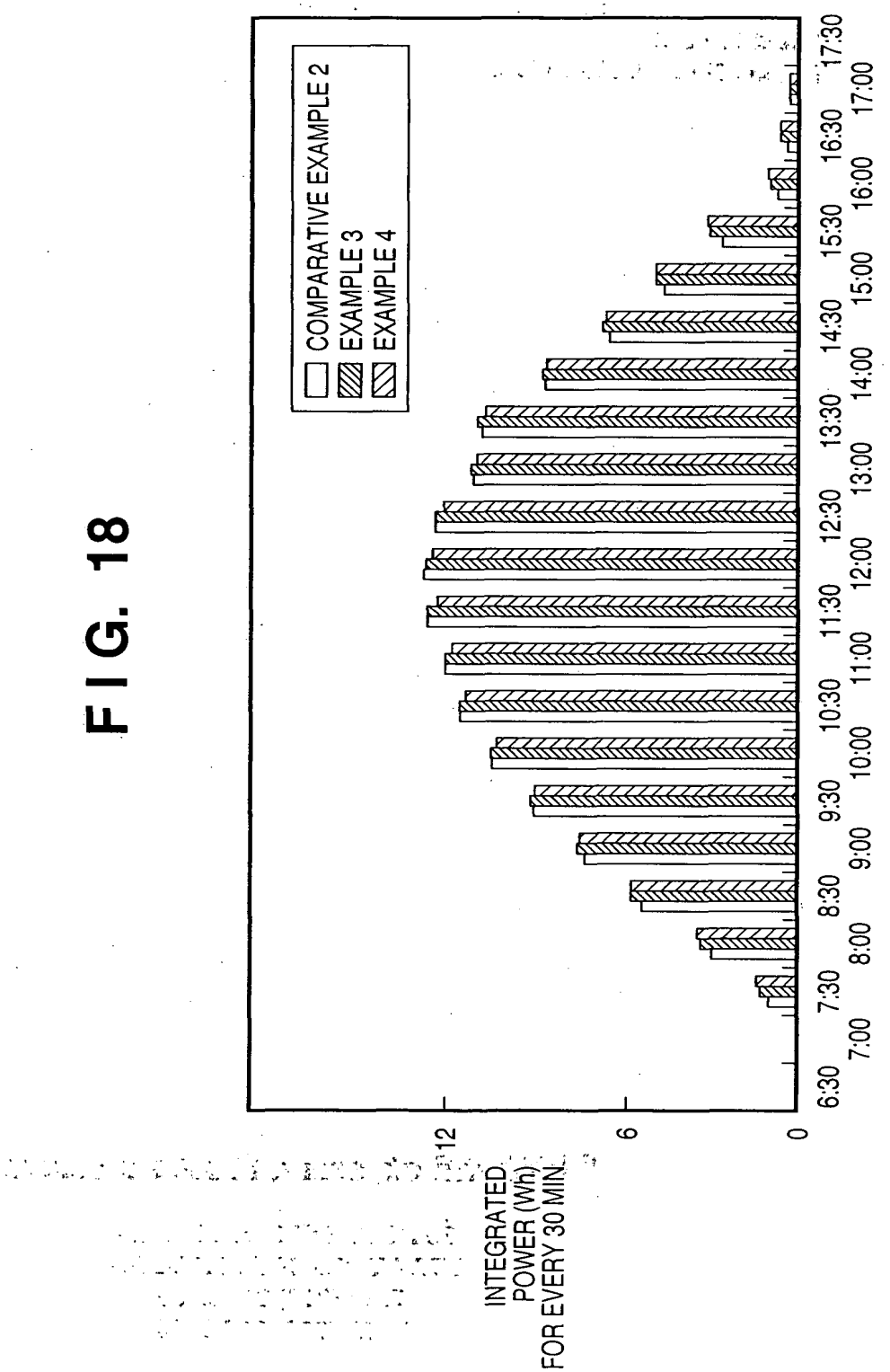
COMPARATIVE EXAMPLE 2
EXAMPLE 3
EXAMPLE 4
INTEGRATED POWER (Wh) FOR EVERY 30 MIN
0
6
12
6:30
7:00
7:30
8:00
8:30
9:00
9:30
10:00
10:30
11:00
11:30
12:00
12:30
13:00
13:30
14:00
14:30
15:00
15:30
16:00
16:30
17:00
17:30

FIG. 19

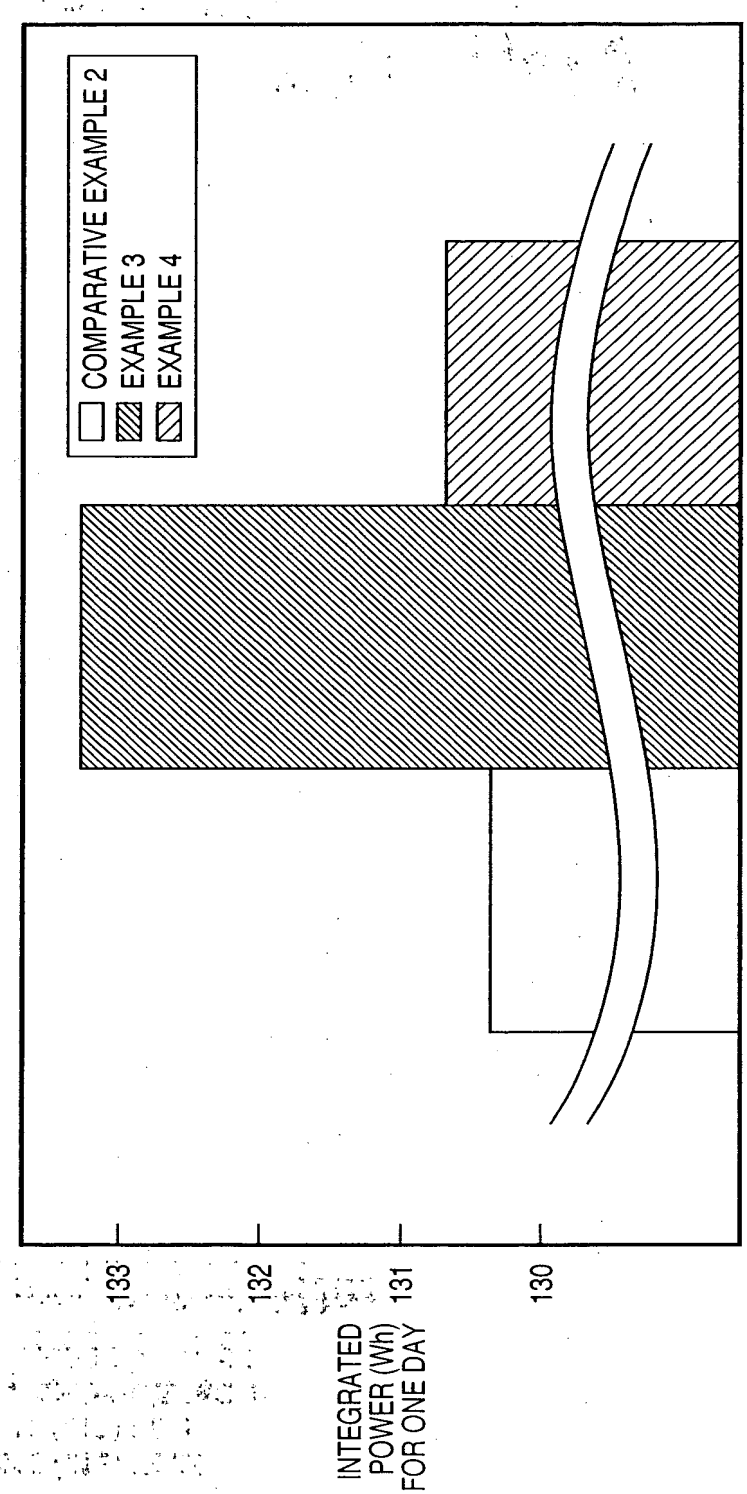
COMPARATIVE EXAMPLE 2
EXAMPLE 3
EXAMPLE 4
133
132
131
130
INTEGRATED POWER (Wh) FOR ONE DAY

FIG. 20

CORE
MATERIAL : FERRITE
SHAPE : EP CORE
EFFECTIVE SECTIONAL AREA : 33.9mm^2
EFFECTIVE MAGNETIC PATH LENGTH : 28.5mm
COIL
PRIMARY WINDING : 2 TURNS × 2 (PUSH-PULL)
MATERIAL : FLAT TYPE COPPER WIRE, WINDING RESISTANCE 9.2mΩ
SECONDARY WINDING : 400 TURNS
MATERIAL : URETHANE-INSULATED MAGNET WIRE, DIAMETER 0.14mm

FIG. 21

CORE
MATERIAL : FERRITE
SHAPE : EP CORE
EFFECTIVE SECTIONAL AREA : 33.9mm^2
EFFECTIVE MAGNETIC PATH LENGTH : 28.5mm
COIL
PRIMARY WINDING : 3 TURNS × 2 (PUSH-PULL)
MATERIAL : FLAT TYPE COPPER WIRE, WINDING RESISTANCE 20.7mΩ
SECONDARY WINDING : 600 TURNS
MATERIAL : URETHANE-INSULATED MAGNET WIRE, DIAMETER 0.115mm

FIG. 22

CORE
MATERIAL : FERRITE
SHAPE : EP CORE
EFFECTIVE SECTIONAL AREA : 33.9mm^2
EFFECTIVE MAGNETIC PATH LENGTH : 28.5mm
COIL
PRIMARY WINDING : 1 TURN × 2 (PUSH-PULL)
MATERIAL : FLAT TYPE COPPER WIRE, WINDING RESISTANCE 2.3mΩ
SECONDARY WINDING : 200 TURNS
MATERIAL : URETHANE-INSULATED MAGNET WIRE, DIAMETER 0.2mm

FIG. 23

CORE
MATERIAL : FERRITE
SHAPE : EP CORE
EFFECTIVE SECTIONAL AREA : 33.9mm^2
EFFECTIVE MAGNETIC PATH LENGTH : 28.5mm
COIL
PRIMARY WINDING : 2 TURNS × 2 (PUSH-PULL)
MATERIAL : FLAT TYPE COPPER WIRE, WINDING RESISTANCE 9.2mΩ
SECONDARY WINDING : 266 TURNS
MATERIAL : URETHANE-INSULATED MAGNET WIRE, DIAMETER 0.17mm

FIG. 24

CORE
MATERIAL : FERRITE
SHAPE : EP CORE
EFFECTIVE SECTIONAL AREA : 33.9mm^2
EFFECTIVE MAGNETIC PATH LENGTH : 28.5mm
COIL
PRIMARY WINDING : 3 TURNS × 2 (PUSH-PULL)
MATERIAL : FLAT TYPE COPPER WIRE, WINDING RESISTANCE 20.7mΩ
SECONDARY WINDING : 399 TURNS
MATERIAL : URETHANE-INSULATED MAGNET WIRE, DIAMETER 0.14mm

FIG. 25

CORE
MATERIAL : FERRITE
SHAPE : EP CORE
EFFECTIVE SECTIONAL AREA : 33.9mm^2
EFFECTIVE MAGNETIC PATH LENGTH : 28.5mm
COIL
PRIMARY WINDING : 1 TURN × 2 (PUSH-PULL)
MATERIAL : FLAT TYPE COPPER WIRE, WINDING RESISTANCE 2.3mΩ
SECONDARY WINDING : 133 TURNS
MATERIAL : URETHANE-INSULATED MAGNET WIRE, DIAMETER 0.24mm